



# Noxious Times

a quarterly publication of the California Interagency Noxious Weed Coordinating Committee

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## California State Assembly Addresses Noxious Weed Problem

There are currently two legislative items proposed in the California Assembly regarding noxious weeds and one Joint Resolution that has already passed. The two bills are early in the legislative process, and as such, are not yet fully fleshed out. To find out more about them consult the website (<http://www.leginfo.ca.gov/bilinfo.html>) or contact the Assemblymen's offices. The following summaries are taken directly from the language in the bills themselves.

### Assembly Bill 737 - Oller, House, Frusetta, Maldonado

This bill would create the Yellow Starthistle and Other Noxious Weeds Statewide Eradication and Control Program under the jurisdiction of the Department of Food and Agriculture. The bill would appropriate \$10,000,000 from the General Fund to the department for purposes of the program.

### Assembly Bill 1168 - Frusetta

This bill would create the Cooperative Noxious Weeds Management Program, under the jurisdiction of the Department of Food and Agriculture, for the purpose of conducting research for eradicating noxious weeds, including, but not limited to, the yellow starthistle. The bill would make an unspecified appropriation from the General Fund to the Department of Food and Agriculture for these purposes, as specified.

### Assembly Joint Resolution No. 4 - Maldonado

This measure memorializes all government agencies, particularly the United States Forest Service and the United States Bureau of Land Management and the Department of Transportation (CALTRANS), the Department of Fish and Game, and the Department of Forestry and Fire Protection to cease and desist from using nonnative plant material other than certified weed-free straw in any of their programs within California.

## President Clinton Expands Federal Effort to Combat Invasive Species

On February 3rd President Clinton signed an executive order to coordinate a federal strategy to address the growing environmental and economic threat of invasive species, plants, and animals that are not native to the United States. Interior Secretary Bruce Babbitt, Agriculture Secretary Dan Glickman, and Commerce Under Secretary James Baker told a news conference that the order creates a Federal Interagency Invasive Species Council, co-chaired by the Secretaries of the Interior, Agriculture, and Commerce and includes State, Treasury, Defense, Transportation and the Environmental Protection Agencies. The Council's first task will be to create an invasive species management plan. The Secretary of the Interior will establish an advisory committee to provide information and advice for consideration by the Council, including recommended actions at the local, state, regional, and ecosystem levels to achieve the goals of the Management Plan. The Council will act in cooperation with states, tribes and scientific, agricultural, and conservation groups, as well as, other stakeholders.

The Council has seven duties: (1) overseeing implementation of the executive order (EO); (2) supporting field-level planning; (3) identifying international recommendations; (4) creating National Environmental Policy Act guidance; (5) establishing an impact monitoring network; (6) developing a web-based information network;

*continued on page 11*

## CINWCC Signatory Agencies and Representatives

California Agricultural Commissioners and Sealers Association

Mark Quisenberry, Acting (530) 822-7500

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U.S. Department of Agriculture, Animal and Plant Health Inspection Service

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## Active Stakeholders

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California Cattleman's Association

Ken Zimmerman (562) 866-1400

California Exotic Pest Plant Council

Jake Sigg (415) 731-3028

California Native Plant Society

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The Nature Conservancy

John Randall (530) 754-8890

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Ray Carruthers (510) 559-5800

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# Chairman's Message: Nate Dechoretz

A noxious invasive weed can sweep across the landscape, in the often used metaphor, like a wildfire burning by leaps and bounds. Fortunately for the weed control community, we are beginning to see public, professional, and political awareness about weeds heat up analogously. This is in response to the widening acceptance of the threat that noxious and invasive weeds pose. President Clinton's signing of the Executive Order on February 3rd may usher in a whole new level of monetary support and coordination for exotics control by Federal agencies. In California, Assemblymen Oller, Frusetta, Moldanado and others are taking a lead in providing new resources at the ground level and support to local Weed Management Areas (WMA). The number of WMA has increased from 7 in early 1998 to greater than 20 at this time; with more forming. Front page articles have appeared in the Los Angeles Times and the San Francisco Chronicle on invasive weeds. ....The list goes on.

So now is the time for weed control coordinators to be especially alert and focused on needs, priorities and opportunities to harness and guide this growing public awareness. Groups such as the California Interagency Noxious Weed Coordinating Committee, the California Exotic Pest Plant Council, the Range Management Advisory Committee, the stakeholders, and others, play a large part in providing this leadership. We need to focus on priorities and where we want to go with these new resources. As an example, the Western Weed Coordinating Committee is beginning to inventory actual dollars spent by each Federal Agency and to estimate monies/budgets needed for full implementation of weed control throughout the Western States. This is the type of information that can go back to the policy makers to direct these new resources.

Let's hope that the increases in awareness and resources are followed by a dramatic increase in successes on the fire line of the noxious weed inferno. ❖

*Noxious Times* is a publication of the California Interagency Noxious Weed Coordinating Committee. The committee was formed in 1995 when 14 federal, state, and county agencies came together under a Memorandum of Understanding to coordinate the management of noxious weeds. The committee's mission is to facilitate, promote, and coordinate the establishment of an Integrated Pest Management partnership between public and private land managers toward the eradication and control of noxious weeds on federal and state lands and on private lands adjacent to public lands.

The *Noxious Times* newsletter intends to help the committee achieve its goals of coordination and exchange of information by providing land managers throughout the state with information on weed control efforts, news, and successes.

*Noxious Times* is published quarterly by staff of the Integrated Pest Control Branch at the California Department of Food and Agriculture. We welcome submissions for our upcoming issues. Please send to: CA Department of Food and Agriculture, ATTN: Noxious Times, 1220 N Street, Room A-357, Sacramento, CA 95814 or e-mail: noxtimes@cdfa.ca.gov

If you have a colleague whose name you would like to add to our mailing list, please send mailing information to the address above.

*Noxious Times* Editorial Staff: Carri Benefield, Steve Schoenig, Pat Akers. Text written by staff unless otherwise noted.

# Minutes of the California Interagency Noxious Weed Coordinating Committee Meeting

## Sacramento, CA January 20, 1999

### Agency Reports

**California Agricultural Commissioner's Association (CACASA):** (1) *Weed Free Forage Program*- CACASA is developing a model Certification Forage Program to prevent weed propagated material from spreading throughout the state. Agencies involved include the BLM, USFS, CDFA, and other state agencies. The group's target date to get the program up and running is 2003. (2) *Nurseryman's Project*- In process of contacting CA Floral Council, Society of American Florists, and Cut Flower Association in regards to introduction of invasive dry cut species into CA through floral trade. Will report further findings at next CINWCC meeting. (3) A land owner in Kern County has requested to bring Kudzu into CA to culture and sell. There is no legal way to prevent such efforts. A letter from the Kern County Ag Commissioner is expected to oppose the entry of Kudzu into the state.

**Bureau of Land Management:** Potential for \$3.5 million budget increase nation-wide for year 2000.

**USDA-Agricultural Research Service:** Tamarisk (Salt Cedar) Bio-control (see article on page 5). (2) Researchers (Tom Dudley) at UC Berkeley will be conducting ecological studies of both Tamarisk and Arundo Donax (Giant Cane).

**CA Department of Food and Agriculture (CDFA):** (1) *Oller yellow starthistle Hearings* (See *Noxious Times*, Vol. 1, No. 3)- 3-hour testimony was taken from experts throughout the state. Potential legislation is currently under investigation. Species beyond yellow starthistle were also stressed in the hearings. The RMAC Draft Strategic Plan for the Coordinated Management of Noxious Weeds in California was presented at the Oller hearings. The RMAC plan was modeled after the Idaho Strategic Plan which, after a long process, was just accepted and has raised the level of awareness in Idaho and surrounding states. Transcripts from the Oller hearings can be obtained by contacted Oller's staff. Letters supporting the RMAC Strategic Plan to Oller and other assemblymen are highly encouraged. (2) *An Executive Order* on National Invasive Species is expected February 3<sup>rd</sup> (see article on front page). (3) An official letter has been

sent to CDFA requesting Tamarisk be added to the State Noxious Weed List. Hearings will be required to further evaluate potential additions to the State Rated List. (4) *Weed Management Areas (WMA's)*- Using Wyoming and Idaho as models regional/county/local WMA's are being organized throughout the state. WMA's consist of various local and state agencies, as well as private citizens. Currently 10 grassroot level weed management groups have been formed and 15 are currently being formed; 30 are expected by the year's end. As WMA's grow in number the need to identify further funding opportunities will be great. CINWCC members are strongly encouraged to be active participants in the formation of WMA's throughout the state. (5) *Yellow starthistle Leading Edge Mapping Project*- GIS will be used to map out areas of potential yellow starthistle spread (elevation, rainfall, vegetative communities as barriers) and then fine grain mapping will be used at the edge of infestations to enable HIGH priority "eradication" areas to be identified. It is intended that CalTrans, landowners, and the like would then be able to monitor and further utilize mapped priority areas to stop the spread of this invasive pest. (6) CINWCC is currently organizing a multi-state meeting of Western weed groups/agencies. The potential for a partnership between APHIS with CINWCC was noted and in large part hinges on funding.

**US Forest Service:** Regional coordinated forest management plan has incorporated weed control as a major component (see article on page 7).

**Bureau of Indian Affairs (BIA):** Locoweed has been a focus on reservation within CA, while yellow starthistle has been a focus on many reservations outside of CA. At a meeting in March funds for weed management will be distributed amongst reservations.

### General Business

**Natural Resource Conservation Service (NRCS) USDA (formerly US Soil Service):** Dave Dyer and Gary Bullard from NRCS gave updates on: (1) *The Lockeford Plant Materials Center*: 30 cultivars were used

in 37 standard conservation practices, such as: cover and green manure crop, critical area planting, grass waterway and range seeding. Currently there are 8 active studies involving eucalyptus trees, halophytes, native grasses, vetches, and water use of landscape plants. These studies include 100 species, of which 15 are native plants. Three selected releases of purple needle grass, *Nassella puchra*, were made in Alameda, Colusa, and Tehama Counties. Field planting program is alive and well, with 49 field plantings installed in the past three years, including many using native plants. The information gained from these planting is being used to update the vegetative section of the NRCS technical guide; suggestions are welcome. (2) *Cost Share and Assistance Programs* (Environmental Quality Incentives Program (see article on page 8, 9), Wildlife Habitat Incentive Program, Wetland Reserve Program, & Forestry Incentive Program). NRCS is currently updating the vegetative section of their plant guide; suggestions are welcome. Further information can be found at <http://www.ca.nrcs.usda.gov>, <http://ceres.ca.gov/foreststeward/funding.html>, [plant-materials.nrcs.usda.gov](http://plant-materials.nrcs.usda.gov)

**Resource Conservation Districts (RCD's):** Tom Wehri, Statewide Director CARCD discussed what RCD's are, their functions, and partnership opportunities with Weed Management Areas (WMA's). WMA's were highly encouraged to invite local RCD leaders/members to participate in meetings, activities and partnering to further weed control efforts at the local level. For further information contact Tom Wehri or your local RCD office.

**CalFed Nonnative Invasive Species Program:** Kim Webb from USFW presented a program overview (see article on page 8). **National Fish and Wildlife Foundation Grants Program (NFWF):** Eric Hammerling, State Program Director described the Grants Program (see article on page 9).

**RMAC Strategic Plan for the Coordinated Management of Noxious Weeds in California:** Feedback and input towards the Strategic Plan were solicited by CINWCC members and stakeholders. Agencies were encouraged to sign-off on the plan. ❖

# Saltcedar Biological Control: Ready, Set, Go!

By Scott Stenquist

In North America the genus *Tamarix* (family Tamaricaceae) includes two or more related species of invasive, exotic plants (either shrubs or small trees) collectively known as "saltcedar." Saltcedar occupies over 1.5 million acres of riparian habitat in the western U.S. (Lovich, 1996). Saltcedar is prevalent in the southwestern and western United States, but is native to the Mediterranean area and Asia. The U.S. Fish and Wildlife Service manages the national wildlife refuge system strictly for fish, wildlife, and their habitats, but tamarisk has infested approximately 29,000 acres in the system. Habitats on 33 national wildlife refuges are impacted by saltcedar including the following refuges in California: Tijuana Slough, Sweetwater Marsh, Sony Bono Salton Sea, Imperial, Cibola, Havasu, Coachella Valley, Bitter Creek, Pixley, Kern, and Sacramento River.

Although not legally designated as a state or federal noxious weed, saltcedar forms dense monotypic stands that replace native grass, forbs, shrubs, and trees along riparian zones. *Tamarix* disrupts ephemeral springs and creeks as well as permanent rivers and lakes. Native plants, insects, fish, and wildlife, including wild horses and burros, are dependent on these water regimes and associated habitats. Federal- and state- listed threatened and endangered species may inhabit the aquatic and riparian environment impacted by saltcedar.

**"Potential for the ultimate recovery of not only the flycatcher, but of our western riparian ecosystems will depend in grand part to our combined efforts to control saltcedar and provide for the reestablishment of native riparian species."**

Biocontrol, one of the most promising integrated weed management techniques

for saltcedar, is being proposed for use at 13 sites in the West. In January, 1999, the U.S. Department of Agriculture-Animal Plant Health Inspection Service (USDA-APHIS) prepared a draft environmental assessment (EA), "Field Release of a Nonindigenous Leaf Beetle, *Diorhabda elongata* (Coleoptera: Chrysomelidae) for Biological Control of Deciduous Saltcedar, *Tamarix ramosissima* and *T. parviflora* (Tamaricaceae)." By the end of February, USDA-APHIS expects to publish a notice in the Federal Register advertising the availability of the EA for public comment. Comments will be received for 30-days.



The EA for the mealybug, *Trabutina mannipara*, will be issued subsequently for public comment.

After USDA-APHIS signs a "Finding of No Significant Impact" (FONSI), the agency will issue a permit for release of the leaf beetle, a native insect of Central Asia. It is proposed for release at 12-specific sites which are 200 miles distant from where the southwestern willow flycatcher, *Empidonax traillii extimus*, nests in saltcedar. The flycatcher was designated a federal endangered species in the spring of 1995. The U.S. Fish and Wildlife Service, under authority of the Endangered Species Act, advised USDA-APHIS in Dec. 1998 that the release of the insects at the 13 experimental sites would not adversely affect the southwestern willow flycatcher. The mealybug, a native insect of Israel, will be released at 5 of the 13

sites at a later date.

Dr. Jack DeLoach, research entomologist with USDA-Agricultural Research Service (USDA-ARS), has been responsible for the saltcedar research with the leaf beetle and mealybug. This research effort has been through several "lows" and "highs" during his 11 years of work on this project. The Technical Advisory Group for the Biological Control of Weeds (TAGBCW) approved the proposal to begin work on the insects in 1989. TAGBCW approved petitions for release of the insects in 1994. The draft environmental assessment was prepared by USDA-APHIS, but the FONSI was never issued based on the listing of the southwestern willow flycatcher as endangered in March, 1995.

Meanwhile, Dr. DeLoach worked on the biological assessment, "Effects of Biological Control of Saltcedar (*Tamarix ramosissima*) on Endangered Species," and conducted numerous reviews with the U.S. Fish and Wildlife Service endangered species biologists, integrated pest and weed management coordinators, and biologists. Other biologists with U.S. Department of the Interior agencies including Bureau of Land Management, Bureau of Reclamation, and the National Park Service actively participated. After a series of discussions in 1998, DeLoach proposed to make research releases of the two insects at sites which are geographically isolated from sites important to southwestern willow flycatcher reproduction. This approach, combined with intensive site monitoring for target and non-target effects, brought USFWS concurrence.

Three of the 13 proposed release sites are in California, along the Owens River, Cache Creek, and Nacimiento Creek. These sites are managed by the Los Angeles Department of Water and Power, U.S.

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# CDFA Biologists Lead "Weed Tours"

California Department of Food and Agriculture State Biologist Butch Kreps (Redding East Region) and Robin Breckenridge (Sacramento West Region) will once again lead noxious weed field training sessions throughout Northern California. These "Weed Tours" are concentrated training sessions that allow state and county personnel to observe, photograph, and collect specimens of weeds currently under control and eradication in California. Discussions at each site allow review of mechanical, chemical, and biological control methods used by different counties on the same weed species, as well as review of experiences with control and eradication. CDFA-IPC (Integrated Pest Control Branch) provides transportation and training materials, as well as knowledgeable biologists to lead these identification/training sessions. Individuals attending are responsible for lodging and meals (where applicable). Priority is typically given to agricultural commission staff and county/state personnel. Tours were initiated in the early eighties at the request of several cooperating state-wide agencies.

## One Day- Siskiyou and Modoc County Tours

Butch Kreps, in conjunction with County Ag Commissioners and Farm Advisors, is currently planning two tours, one in Modoc County and another in Siskiyou County, for probably the second and/or third weeks in July. Tours are one day events and participants travel via vans and car caravans. Tours begin at a location in town and convoy to different weed locations throughout the respective counties. At each stop, there are discussions of detection, biology, and control of the invasive weeds present. On average the group will see and discuss 12-15 rated noxious weeds, as well as, several other non-rated weeds along the way. Weeds highlighted on past tours have included a variety of thistle and knapweed species, hemlock, and whitetop (perennial pepperweed), to name a few.

Butch has taken as many as 30 interested persons in past years.

## Five Day- Northern California Excursion

Robin Breckenridge has tentatively scheduled two tours for June 21-25<sup>th</sup> and June 28-July 2<sup>nd</sup>. Robin's tours are five weed-full days that travel a total of 1,700 miles. The tour covers approximately 60 "A-and-B-Rated" noxious weed species throughout a variety of infested sites. Participants should be prepared for long, dirty days (approx. 325 miles/day)

consisting of numerous stops and rough terrain. Participants travel by passenger van, limiting each tour to 10-12 participants. Robin's tours begin in Sacramento and make stops at 50 sites within an extensive loop that extends as far East as Reno, as far North as Dunsmuir, and then travel back down the coast from Fort Bragg to Benecia and back to Sacramento.

*For further information, specific dates and/or to reserve a spot, requests can be directed to:*

**1-day tours:** Modoc Ag Commissioners office (530) 233-6401 or Siskiyou Ag Commissioners office (530) 841-2540, **5-day tour:** (916) 654-0768

## Fish and Game Studies Giant Cane (*Arundo donax*)

By Joel Trumbo

In 1997, the California Department of Fish and Game (CDFG) was awarded a grant by the U.S. Environmental Protection Agency to study ways in which herbicides can be used to control the invasive exotic giant cane *Arundo donax* and the hazards that herbicide use may have on non-target aquatic organisms. Three herbicide methodologies are included in this demonstration project: herbicide applications made to freshly cut cane stumps, applications made to cane stems that have been cut and then allowed to grow back to a height of five to seven feet, and herbicide applications by helicopter to uncut cane patches. The study, which will be carried out over the course of this year, began in the fall of 1998 at CDFG's Gray Lodge Wildlife Area in Butte County. Initial results of the herbicide use trials indicate that all three application methods are showing acceptable levels of control, however, further monitoring during the 1999 growing season will be necessary to provide a more accurate assessment.

Another task closely related to the field demonstration project is the use of laboratory toxicity tests to determine the hazard of herbicide and surfactant use on non-target frogs and fish. The results of these toxicity tests, which are being conducted at CDFG's Aquatic Toxicology Laboratory in Elk Grove, will be compared to field concentrations of the herbicide and surfactant in waterways that were directly adjacent to the aerial herbicide application. Preliminary results of these tests indicate that the use of the herbicide and surfactant pose no significant toxicity hazard to non-target fish and frogs.

In addition to the herbicide demonstration project and hazard assessment work, CDFG's project will also produce several public education products about the threat of giant cane to riparian and wetland areas. These public education materials will include a professional quality video and a color brochure. Finally, the CDFG project has a mapping component that will focus on documenting the spread of giant cane along waterways of Northern and Central California.

*For further information, please contact Joel Trumbo of the CDFG at (916) 358-2952 or email him at [jtrumbo@hq.dfg.ca.gov](mailto:jtrumbo@hq.dfg.ca.gov).*

# Profile Weed Control in

**T**he Forest Service (USFS) is the largest land-managing agency within the United States Department of Agriculture (USDA), managing 191 million acres of land nationwide and 20 million acres of land in California. It is estimated that noxious weeds occur on 6-7 million acres of National Forest Service lands across the United States, potentially increasing at a rate of 8 to 12% per year. The Forest Service has a lead responsibility for noxious weed coordination within the Department of Agriculture, under the authority contained in the Noxious Weed Act of 1974, the Hawaii Tropical Forest Recovery Act, and USDA Policy 9500-10. California is contained in Region 5 along with Hawaii.

Forest Service Policy was revised in 1995 (Forest Service Manual 2080) to emphasize integration of noxious weed management in ecosystem analysis, assessment, and forest planning. Also

emphasized is coordination of weed management through cooperation with other agencies, State and local governments, and private landowners. The Forest Service Manual can be viewed on the internet, <http://svinet2.fs.fed.us:80/im/directives/fsm/2000/2080.txt>.

Forest Service Policy defines noxious weeds as: Those plant species designated as noxious weeds by the Secretary of Agriculture or by the responsible state official. Noxious weeds generally possess one or more of the following characteristics: Aggressive and difficult to manage; poisonous, toxic, parasitic; carrier/host to serious insects or disease; and/or non-native, new to, or not common to the U.S.

## Three Major Branches Responsible for Noxious Weed Management

Three major branches of the Forest Service have responsibilities for different aspects of noxious weed management. They are (1) Research, (2) State and Private Forestry (S&PF), and (3) National Forest Systems (NFS).

### Research

The primary emphasis of Forest Service Research has been in the development of biological control. The research branch works in conjunction with the USDA Agricultural Research Service (ARS) weed control. Weed ecology is a component of forest and rangeland ecology research for the Western Forest and Range Experiment Stations. Studies that are ongoing concern germination rates and life cycles of noxious weeds, restoration methods for infested areas, and on the use of burning, grazing, and fertilization as alternatives to pesticide use.

## State and Private Forestry

The Forest Health Protection Branch of State and Private Forestry has responsibility to provide technical assistance in the pesticide and integrated pest management programs. It is beginning to provide field units with entomological and pathological technical assistance for noxious weeds, including biological control. Forest Health Protection is responsible for reporting all pesticide use in the annual report of the Forest Service to Congress. Forest Health Protection also participates in the National Agricultural Pesticide Impact Assessment Program which provides the necessary research for potential data gaps for pesticides currently registered with the Environmental Protection Agency. Pesticide background statements and risk assessments for pesticides commonly used in noxious weed control are currently being updated. These risk assessments are used to analyze and determine the potential impacts of pesticide use, such as potential adverse effects on health and safety, on NFS lands.

## National Forest Systems

The National Forest Systems has responsibility to prevent, control, and eradicate noxious weeds on 18 National Forests in California. To achieve this goal, the administrative units of NFS work in conjunction with State and local governments and private landowners for the common purpose of noxious weed management across jurisdictional boundaries.

Reflecting the traditional view of noxious weeds as a range problem, management of the noxious weed program has been delegated to the Director of Range Management within NFS. Funding for management of noxious weeds is contained within the general range





# n the U.S. Forest Service

management budget. Budgets for Region 5 have changed rather dramatically in recent years along with the growing concern nationwide for the spread of invasive exotics. Up until 1997, this region received from \$5,000 to \$8,000 annually for noxious weed management. The noxious weed management budget for fiscal year 1999 is \$155,000. The projected target for treatment of noxious weeds is nearly 2000 acres, up from 400 acres last year.

As Region 5 continues to build an effective noxious weed program, funding for weed programs will need to come

from many different sources within the Forest Service, such as wildlife, roads, recreation, and timber. The weed problem is recognized as one that can only be successfully challenged by all disciplines working together.

## **Nationwide Goals Identified**

Four primary goals have been identified for the noxious weed program nationwide. They are:

- Increase the understanding and awareness of noxious weeds and the adverse effects they have on wildland ecosystems.

- Develop and promote implementation of a consistent IPM noxious weed program as a high priority at all levels of the agency.

- Institutionalize consideration of noxious weeds in planning and project analysis.

- Develop strong partnerships and cooperation with private landowners, county governments, State Foresters, State and Federal Agencies, extension services, universities, and the research community for a consolidated united approach.

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## **Sierra Nevada Framework EIS- Noxious Weeds in the Sierra Nevada National Forests**

By Joanna Clines

In the course of preparing an Environmental Impact Statement (EIS) to update management direction for Sierra Nevada national forests, Forest Service managers currently have a unique opportunity to address a looming weed problem. While the Sierra Nevada mountain range is still largely weed-free, many areas are highly vulnerable to weed invasion and subsequent land degradation. An obvious example is the explosion of yellow starthistle in the foothills and its appearance at higher elevations in the Sierra each year. Forest Service staff are reporting outlier yellow starthistle infestations in conifer forests at elevations up to 6,000 feet where just a few years ago many would not have expected to see starthistle. Alarming, in 1997 starthistle was reported from Tuolumne Meadows in Yosemite National Park at 8,600 feet (plants were flowering, but were pulled before seed set).

Forest Service staff have identified 58 species of invasive non-native plants that are impeding the ability to manage for healthy ecosystems in Sierran national forests. Included in this list are highly damaging weed species such as leafy spurge, spotted knapweed, Dalmatian toadflax, and rush skeletonweed. The behavior of these species in areas with similar growing conditions (e.g. Montana, Idaho) gives ample reason to acknowledge their potential to spread rapidly across the Sierra Nevada. Invasives threaten to crowd out native vegetation, degrade wildlife habitat, and drastically reduce land values. The challenge is to recognize the problem *early on* and to take advantage of this narrow window of opportunity to limit and prevent further spread. While successful techniques for managing weed infestations are well established, the difficulty lies in mobilizing people to take action before it is too late for effective and economical solutions.

As part of a larger effort called the "Sierra Nevada Framework for Conservation and Collaboration," the Forest Service is preparing an Environmental Impact Statement to address five problem areas with urgent need for attention. Areas include: (1) old forests, (2) riparian ecosystems, (3) fire and fuels, (4) hardwoods, and (5) noxious weeds. The EIS will amend the Land and Resource Management Plans for 11 national forests. Since existing land plans were written in the late 1980s to early 1990s, prior to heightened awareness of invasive weeds, the plans had little to no direction on noxious weed management. The EIS will provide new management guidelines for integrated weed management, including specific steps to take in the areas of prevention and education, cooperative efforts, inventory and mapping, treatment and control, and monitoring. The draft EIS is expected to be published this summer. If you would like to receive a draft copy please contact Steve Clauson, Interdisciplinary Team leader, at (916) 492-7554. For more information on the Framework and the EIS look on the web at [www.r5.fs.fed.us](http://www.r5.fs.fed.us)

*Anyone interested in reviewing a working copy of the draft guidelines and/or in offering suggestions may call Joanna Clines at (916) 492-7572 or Steve Bishop at (916) 492-7558. Joanna Clines is a Botanist for the Sierra Nevada Framework Project EIS team.*

# \$\$\$ Sources of Funding for We

## CALFED Bay Delta Program

**Agency:** CALFED-DFG, DWR, CalEPA, WRCB, NMFS, EPA, FWS, BOR, CDFA (NRCS)

**Goals of Program:** To develop a long-term comprehensive plan to restore ecosystem health and improve water management for beneficial uses of the Bay-Delta system. The four primary objectives are water quality, ecosystem quality, water supply reliability, and Bay-Delta system vulnerability.

**Eligible Recipients:** Anyone in the Bay-Delta and tributary watersheds, including agencies, individuals, or non-profit organizations.

**Available Funds:** \$18.7 million available; 7 topic areas; Introduced Species is one area

**Funding Cycle:** Proposals due April 16, 1999

**Contact Person:** Rebecca Fawver (916) 654-1334

**Internet:** <http://calfed.ca.gov>

## Environmental Quality Incentives Program (EQIP)

**Agency:** USDA (NRCS)

**Previously funded projects:** Noxious weed ID pamphlet & posters, Mojave Desert RCD Website, Noxious weed control demonstrations, Bio-control of yellow starthistle & other invasives meeting

**Goals of Program:** Voluntary conservation program to assist farmers and ranchers of private agricultural lands to install cost-effective and technically sound natural resource management systems. The Education Assistance Component of EQIP is intended to complement the technical and financial assistance components by meeting the educational needs of land care providers.

**Eligible Recipients:** Non-profit conservation, agricultural, commodity, and environmental organizations including RCD's, Cooperative Extension, private non-profits and others.

**Available Funds:** \$540,000 (Education Assistance Grants)

**Funding Cycle:** Proposals due April 2

**Contact Person:** Gary Bullard (530) 792-5651, Mark Pason (530) 792-5660 (State) or local NRCS offices & RCD's

**Internet:** <http://www.ca.nrcs.usda.gov>, <http://ceres.ca.gov/foreststeward/funding.html>, EQIP web site currently under construction

Funding is the continual pulse keeping existing programs running and getting new projects off the ground. The big challenge is finding funding that might apply specifically to weed control/management efforts. Funding may come from several sources: State and Federal, non-profit organizations, and private foundations/industry. Additionally, funding can be separated into funds allocated towards research, on-the-ground control, or education/prevention funding. Our focus here will be on the latter two.

While there are only a handful of weed specific funding opportunities (*highlighted in article to follow*), the majority of applicable funds fall under the more general "catch all" categories of restoring ecosystem health and preserving and protecting California's environment. Such funding might address fisheries, wildlife, and waterfowl habitat preservation, watershed protection, or rangelands, wildlands, and wetlands restoration/conservation. Overall, a project proposal that emphasizes restoring the entire system and includes exotics control as a part/section within the proposal could stand a good chance of obtaining invasive weed project funding "through the back door." Ultimately, groups such as CINWCC should work towards creating/lobbying for more invasive weed management/project funding at State/Federal, Non-profit, and Private Foundations levels.

There are many specialty grants that a weed management agency or group can tap into. It may just be a matter of tailoring or matching funding to a group's needs or situation. For Example, specific funds might be applicable for groups in the following situations:

- A group battling tamarisk could tap into grants calling for resource conservation, soil erosion and water pollution.

- Individuals developing strategies

for yellow starthistle might apply for funding addressing rangeland management, livestock production, or using fire as a tool to control vegetation.

- Watershed improvement funds, aquatic habitat restoration, or improvement of public access funds could be utilized in situations where invasives such as Cape ivy (*formerly known as German ivy*) or water hyacinth are impeding water flow and obstructing waterways.

- Countless funds are available for projects conducted in particular regions of California and additional funds are accessible if endangered species are affected by weed infestations.

- Tagged funds are available for habitat destruction/environmental protection on Indian tribal grounds and Department of Defense lands.

- Yet another specialty category of funding is directed towards projects aimed at environmental education in schools and at the local/county levels.

## FUNDS DIRECTLY ALLOCATED TOWARDS WEED MANAGEMENT PROJECTS

### CALFED Bay Delta Program

CALFED is a group of state and federal agencies that came together to cooperatively develop and implement a long-term comprehensive plan that will restore the ecological health and improve water management for beneficial uses of the Bay-Delta system. The Ecosystem Restoration Program (ERP) is the principal program component designed to restore and mimic ecological processes and to increase and improve aquatic and terrestrial habitats. CALFED has come



# Weed Management Programs \$\$\$

to recognize the threat non-native invasive species represent to healthy ecosystems and restoration efforts. As part of the ERP, the U.S. Fish and Wildlife Service has accepted the responsibility of developing, implementing, managing, and coordinating a Non-native Invasive Species Program. The program objectives include: development of long-term strategy, support of prevention-oriented and control-oriented management, and research projects. Monies are available to extend existing programs, on a competitive grants basis, and to go directly towards projects. A final draft of the strategic plan is completed and work on an implementation plan is underway.

## Environmental Quality Incentives Program (EQIP)

The Natural Resource Conservation Service (formerly known as the Soil Conservation Service) was established in the 1996 Farm Bill to provide a single, voluntary conservation program for farmers and ranchers to address significant natural resource needs and objectives. The Environmental Quality Incentives Program (EQIP) combines four of the USDA's former conservation programs, including Agricultural Conservation and Water Quality Incentives Programs. EQIP is a voluntary conservation program to assist farmers and ranchers of private agricultural lands to install cost-effective and technically sound natural resource management systems. EQIP is designed to address resource concerns that have been identified at the local level to conserve and improve soil, water, air, and related natural resources.

The Education Assistance Component of EQIP is intended to complement the technical and financial

assistance components by meeting the educational needs of land care providers. More specifically it is intended, to identify and share information about tools and techniques for sound resource conservation and to plan, design, implement, operate, and maintain conservation-enhancing land management systems and/or practices. The education assistance and outreach component promotes conservation education in terms of workshops, tours, and demonstrations. Local working groups-including NRCS, Farm Service Agency, RCD's and other private groups and government agencies- define the resource priorities for their areas and all educational proposals must first receive concurrence from their local group. Therefore, Weed Management Areas are encouraged to invite members of such working groups to actively participate in their weed management efforts and to cooperate on project proposals.

## National Fish & Wildlife Foundation (NFWF)

The National Fish and Wildlife Foundation (NFWF) is a private, non-profit organization established by Congress in 1984. NFWF works to foster cooperative partnerships to conserve fish, wildlife, and plant resources. NFWF stimulates private funding for conservation through the use of challenge grants.

General grant criteria include: project scope (on-the ground habitat conservation projects that demonstrate a landscape/ecosystem approach), innovation (projects that encourage public involvement, and develop new strategies, or teach habitat restoration methodologies), leverage (Projects that demonstrate federal matching funds), partnerships (projects that encourage

*continued on pages 14 and 15*

## National Fish and Wildlife Foundation (NFWF)

### *Pulling Together Initiative*

**Previously funded projects:** Lassen County Noxious Weed Project, Fort Ord, Save the Native Fish: Afton Canyon Saltcedar control  
**Sponsors:** NFWF, FWS, BLM, FS, NPS, DOD, and BOR

**Goals of Program:** To provide a means for federal agencies to be full partners with state and local agencies, private landowners and other interested parties in developing long-term weed management projects within the scope of an integrated past management strategy.

**Eligible Recipients:** Established or start-up local weed management area (WMA) partnerships

**Available Funds:** 1.3 million (10 California projects funded, last funding cycle)

**Funding Cycle:** Proposal due in November

**Contact Person:** Eric Hammerling (415) 778-0999 (CA office) or Gary Kania (202) 857-0166

**Internet:** [www.nfwf.org](http://www.nfwf.org)

## "War on Weeds" Mini-Grants

**Agency:** California Interagency Noxious Weed Coordinating Committee (CINWCC) (1999 funds contributed by the BLM)

**Previously funded projects:** Weed prevention flier, Lassen County Yellow Starthistle SWAT Team; ID handbook & tamarisk video, East Sierra WMA; Regional weed video, Battle Creek Watershed Conservancy

**Goals of Program:** Provide funding opportunities for cooperative weed projects, research projects, and educational projects within California.

**Eligible Recipients:** Federal, State, and County Agencies, non-profit groups, private landowners (Weed Management Areas). \*Must be endorsed by one or more signatory agencies of CINWCC

**Available Funds:** \$10,000

**Funding Cycle:** Application deadline: July 17, Awards announced July 23

**Contact Person:** Management of mini-grant proposals has recently been turned over from Anne Knox at BLM to Steve Schoenig at CDFA/CINWCC, [sschoenig@cdfa.ca.gov](mailto:sschoenig@cdfa.ca.gov) (916) 654-076. Send proposals to Steve Schoenig, CDFA, 1220 N St Room A357, Sacramento, CA 95814.

Forest Service *Continued from Page 7*

## Increasing Awareness

Several efforts at increasing awareness and understanding are underway within the region. For example, individual forests have produced educational brochures for public distribution. Videos for children have been shown at local schools. In the area of partnerships and cooperation, many forests have become cooperating agencies in Weed Management Areas. The Los Padres, Modoc, Lassen, Stanislaus, and Sierra National Forests are all part of local and regional Weed Management Areas.

## Efforts in Select Forests

### Tahoe National Forest

The Tahoe NF has developed a draft five-year plan for management of noxious and invasive weeds. Plans call for the treatment of 600 acres of noxious weeds this fiscal year (The National Fish and Wildlife Foundation is partially funding these efforts). All known weed occurrences have been read into GPS. The forest is working on management prescriptions to help prevent, control and eliminate noxious weed introduction and spread. Musk thistle, spotted knapweed, Dalmatian toadflax, and tall whitetop (*Lepidium latifolium*) have been treated by the FS, volunteers, and State and County in a cooperative effort. Due to watershed concerns, the forest received a grant to manually remove 300 acres of musk thistle in the Truckee area.

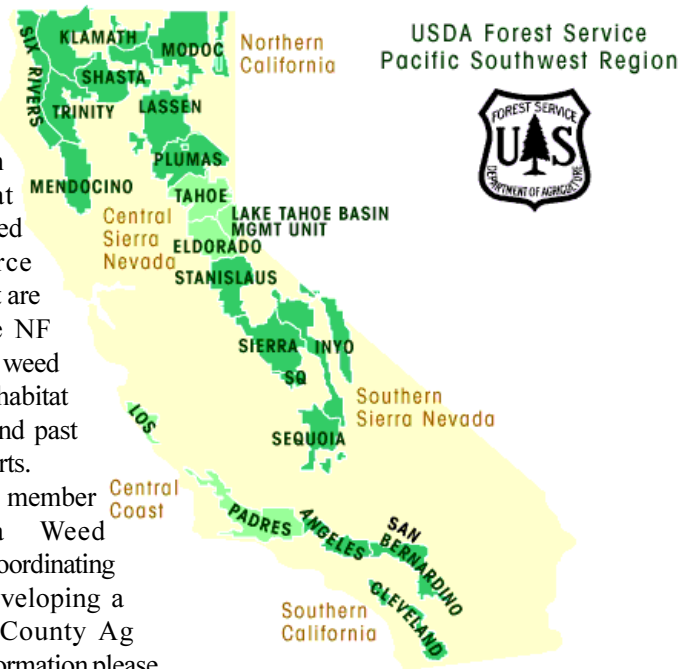
Tahoe NF works cooperatively with local communities to give recommendations on planting materials to replace noxious vegetation that has been removed, as well as, with the Federal Highway Commission regarding planting natives to help stop the spread of invasive weeds. Areas on forest and adjacent lands have also been identified where machines operating off-road would have a high risk of carrying noxious weeds to other areas. Tahoe NF has shared such concerns and are working on preventative actions (provisions for cleaning equipment) with both timber and gravel pit owners/managers. The Tahoe Forest has also been active in a multi-agency effort towards the development of a Weed Free Forage

Program throughout the State (See fall 1998, V1 No. 2). Added to Tahoe NF's accomplishments was the development of an educational booklet that outlines their Noxious Weed Program. This resource includes a list of weeds that are known to exist on Tahoe NF lands, line-sketches, noxious weed survey forms, recognition, habitat and ecology descriptions, and past control and eradication efforts.

Tahoe NF is an active member of the Plumas-Sierra Weed Management Area (WMA) coordinating group and is currently developing a WMA with the Nevada County Ag Commission. For further information please contact *Kathy Van Zuuk* at (530) 478-6243.

### Modoc National Forest

It is estimated that noxious weeds occur on an estimated 60,000 acres of Modoc NF lands. To combat such massive infestations, Modoc NF is in the final stages of drafting an Environmental Impact Statement (EIS) for noxious weed eradication in their forest. The plan focuses on 26 weed species on or surrounding forest lands and emphasizes an integrated pest management strategy that will include mechanical, grazing, cultural, chemical, and biological control methods. The EIS calls for the management of up to 300 acres annually. A project actively being undertaken as part of the EIS is the management of bearded creeper (*Crupina vulgaris*) through an aggressive aerial spraying campaign. The draft EIS should be available in late April and open for public comment. Modoc NF is taking the lead in the formation of the ModocWeed Management Area (WMA). They are in the signatory stage, finalizing their Memorandum of Understanding. Projects that the Modoc WMA foresees undertaking include: Increasing education and awareness of noxious weeds, grant development for inventory and eradication efforts, and chemical and cultural control of yellow starthistle. For further information please contact *Allison Sanger* at (530) 233-8836.



### Los Padres National Forest

The Monterey District has completed an inventory and assessment of invasive exotic plants contained within their district. They have prepared a draft Environmental Assessment (EA) for a proposal to control 12 high priority weed sites (pampas grass, French broom, Arundo, yellow starthistle, & cape ivy). They will be using an integrated management approach. The draft EA is currently out for review. Sites were chosen based on proximity to endangered species, wilderness and corridors of potential spread. Most funding for the exotics program has come from outside grants. The District is actively involved in the Big Sur Weed Management Area. The Santa Barbara District is working on inventory and assessment during the current year. For further information please contact *Jeff Kwasny* at (831) 385-5434. ❖

*Cheri Rhorer and Joanna Clines contributed towards this article.*

*For further information on the Forest Service strategy for noxious and nonnative invasive plant management, contact Cheri Rhorer at 707-562-8682. The National Strategy is entitled "Stemming the Invasive Tide." It is also available at local Forest Supervisor offices. It will be posted to the Forest Service homepage in the near future.*

**Executive Order** *continued from page 1*  
(7) preparing a National Invasive Species Management Plan.

The Management Plan is due within 18 months after the EO is issued and will be prepared in consultation with various stakeholders at the state and local levels. The purpose of the EO is to ensure coordination between the Federal agencies and strengthen the ability to partner with the states and other organizations. The Management Plan will include detailed goals, objectives and measures of success and will identify needed personnel and other resources. The Management Plan will be updated every two years with an accompanying public report on success in implementation. The first edition of the Management Plan will review relevant existing programs and authorities, recommend needed measures, and identify legislative needs. The Council will develop a comprehensive plan to minimize the economic, ecological, and human health impacts of invasive species and determine further steps to prevent the introduction and spread of additional invasive species.

**"This is a unified, all-out battle against unwanted plant and animal visitors that threaten to wreak major economic and environmental havoc"**

Invasive species cost our Nation's economy an estimated \$123 billion annually and are second only to habitat destruction in threatening extinction of native species. Invasive plants and weeds are spreading on Federal lands at 4,600 acres per day. Federal agencies are currently applying some effective and economical strategies to protect these lands from weed infestation, but more needs to be done to prevent further introduction and spread of invasive species..

"This is a unified, all-out battle against unwanted plant and animal visitors that threaten to wreak major economic and environmental havoc," said Glickman. "Asian long-horned beetles destroy trees. Leafy spurge reduces the productivity of

grazing land by 50 to 75 percent. Zebra mussels clog water intake pipes, shutting down electrical utilities. These are serious threats."

President Clinton's budget for fiscal year 2000 proposes an increase of more than \$28.8 million in funding to combat invasive species. This includes new funding for combating exotic pests and diseases as well as accelerating research on habitat restoration and biologically-based integrated pest management tactics. Today's announcements signal an expanded effort to combat invasive species. The President's order directs federal agencies to use their authority to prevent the introduction of invasive species and to restore native species.

*Transcript Available at <http://www.nationalgeographic.com> ❖*

**Saltcedar** *continued from page 4*

Department of Interior-Bureau of Land Management, and Department of Defense-Army, respectively. The other proposed sites are in TX, NM, CO, WY, UT, and NV.

Once the insects are released, it will be essential to monitor their effects on saltcedar, other vegetation, and fish and wildlife. A control site, where no insects are released, will also be monitored for the same effects. This monitoring effort is a huge and substantial task requiring the scientific coordination of dozens of interested parties. "Our hope," said Scott Stenquist, Regional Integrated Pest/Weed Management Coordinator for the U.S. Fish and Wildlife Service in Portland, OR, "is to involve all the interests and groups into a scientific partnership called the Saltcedar Consortium." Monitoring will be an important part of the consortium effort, and perhaps coordinated and led by colleagues at the U.S. Geological Survey-Biological Resource Division. The consortium idea was proposed by Drs. Jack DeLoach,

Ernest Delfosse, and Ray Carruthers (all with USDA-ARS) and Dr. Juli Gould (USDA-APHIS).

Other integrated weed management techniques will also be used to manage saltcedar including: prescribed fire, mechanical cutting, or grubbing out stumps and roots. Each of these treatments must be followed with herbicides. Herbicides can also be used on saltcedar without using fire or mechanical cutting or grubbing. Each of these techniques requires an excessive time and labor commitment, post-treatment monitoring, re-application of treatments as seeds or stems and roots resprout, and site revegetation with native grasses, forbs, and shrubs or trees. For a good review of saltcedar weed management and habitat restoration, check out the 1996 "Saltcedar and Riparian Restoration Workshop" located on the U.S. Fish and Wildlife Service's world-wide-web site: <http://refuges.fws.gov/NWRSFiles/SaltcedarWorkshopSep96/wkshpTC.htm>.

#### References Cited

Lovich, J. 1996. A Brief Review of the Impacts of Tamarisk or Saltcedar on Biodiversity in the New World. In: Saltcedar Riparian and Restoration Workshop, Sept. 16-17, 1996, Las Vegas, NV. U.S. Fish and Wildlife Service, Portland, OR. ❖

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# Implementation Status of Biological

In 1978, the California Department of Food and Agriculture (CDFA) Biological Control Program coordinated a multi-agency effort which led to the successful redistribution of the stem

boring moth, *Coleophora parthenica*, a biological control agent against Russian thistle in California. Since then the Biological Control Program has been coordinating the implementation of biological control of weeds

in California through an informal distribution protocol developed between CDFA and the County Agriculture Commissioners and Sealers Association.

A total of 49 species of classical

## Table 1: Classical Biological Control of Weeds

Weed	Scientific Name	Bio-Control Agent	BC Agent Role	Distribution	Infestation	Control	Availability*
Alligatorweed	<i>Alternanthera philoxeroides</i>	<i>Agasicles hygrophila</i>	Leaf feeding beetle	No establishment			
Broom, Scotch	<i>Cytisus scoparius</i>	<i>Apion fuscirostre</i>	Seed weevil	Widespread	Moderate	Poor	Yes
Broom, Scotch	<i>Cytisus scoparius</i>	<i>Leucopetera spartifoliella</i>	Twig mining moth	Widespread	Moderate	Poor	Yes
Gorse	<i>Ulex europaeus</i>	<i>Exapion ulicis</i>	Seed weevil	Widespread	Heavy	Poor	Yes
Gorse	<i>Ulex europaeus</i>	<i>Tetranychus lintearius</i>	Spider mite	Limited	Slight	Unknown	Limited
Hydrilla	<i>Hydrilla verticillata</i>	<i>Bagous affinis</i>	Tuber feeding weevil	No establishment			
Hydrilla	<i>Hydrilla verticillata</i>	<i>Hydrellia pakistanae</i>	Leaf mining fly	No establishment			
Klamathweed	<i>Hypericum perforatum</i>	<i>Agrilus hyperici</i>	Root boring beetle	Widespread	Light	Unknown	Limited
Klamathweed	<i>Hypericum perforatum</i>	<i>Chrysolina hyperici</i>	Leaf feeding beetle	Unknown	Unknown	Unknown	No
Klamathweed	<i>Hypericum perforatum</i>	<i>Chrysolina quadrigemina</i>	Leaf feeding beetle	Widespread	Heavy	Excellent	Yes
Klamathweed	<i>Hypericum perforatum</i>	<i>Zeuxidiplosis giardi</i>	Bud gall midge	Limited	Light	Poor	Limited
Knapweed, Diffuse	<i>Centaurea diffusa</i>	<i>Bangasternus fausti</i>	Seedhead weevil	Limited	Slight	Unknown	Limited
Knapweed, Diffuse	<i>Centaurea diffusa</i>	<i>Larinus minutus</i>	Seedhead weevil	Limited	Light	Unknown	Limited
Knapweed, Diffuse	<i>Centaurea diffusa</i>	<i>Sphenoptera jugoslavica</i>	Root boring beetle	Widespread	Heavy	Unknown	Limited
Knapweed, Diffuse	<i>Centaurea diffusa</i>	<i>Urophora affinis</i>	Seedhead gall fly	Widespread	Light	Poor	Limited
Knapweed, Diffuse	<i>Centaurea diffusa</i>	<i>Urophora quadrifasciata</i>	Seedhead gall fly	Limited	Slight	Poor	No
Knapweed, Spotted	<i>Centaurea maculosa</i>	<i>Agapeta zoegana</i>	Root boring moth	Limited	Slight	Unknown	No
Knapweed, Spotted	<i>Centaurea maculosa</i>	<i>Cyphocleonus achates</i>	Root boring weevil	Limited	Slight	Unknown	No
Knapweed, Spotted	<i>Centaurea maculosa</i>	<i>Larinus minutus</i>	Seedhead weevil	Limited	Light	Unknown	Limited
Knapweed, Spotted	<i>Centaurea maculosa</i>	<i>Terellia virens</i>	Seedhead fly	Limited	Light	Unknown	No
Knapweed, Spotted	<i>Centaurea maculosa</i>	<i>Urophora affinis</i>	Seedhead gall fly	Widespread	Light	Poor	Limited
Knapweed, Spotted	<i>Centaurea maculosa</i>	<i>Urophora quadrifasciata</i>	Seedhead gall fly	Widespread	Slight	Poor	Yes
Loosestrife, Purple	<i>Lythrum salicaria</i>	<i>Galerucella californiensis</i>	Leaf feeding beetle	Initial release	Unknown	Unknown	No
Loosestrife, Purple	<i>Lythrum salicaria</i>	<i>Galerucella pusilla</i>	Leaf feeding beetle	Initial release	Unknown	Unknown	No
Loosestrife, Purple	<i>Lythrum salicaria</i>	<i>Hyllobius transversovittatus</i>	Root boring weevil	Initial release	Unknown	Unknown	No
Loosestrife, Purple	<i>Lythrum salicaria</i>	<i>Nanophyes marmoratus</i>	Flower bud weevil	Initial release	Unknown	Unknown	No
Puncturevine	<i>Tribulus terrestris</i>	<i>Microlarinus lareynii</i>	Stem boring weevil	Widespread	Heavy	Excellent	Yes
Puncturevine	<i>Tribulus terrestris</i>	<i>Microlarinus lypriformis</i>	Fruit boring weevil	Widespread	Heavy	Excellent	Yes
Prickly Pear	<i>Opuntia spp.</i>	<i>Dactylopius opuntiae</i>	Stem feeding mealybug	Widespread	Unknown	Unknown	Yes
Ragwort, Tansy	<i>Senecio jacobaeae</i>	<i>Longitarsus jacobaeae</i>	Root/Defoliating flea beetle	Widespread	Heavy	Excellent	Limited
Ragwort, Tansy	<i>Senecio jacobaeae</i>	<i>Pegohylemyia seneciella</i>	Seedhead fly	Unknown	Unknown	Unknown	No
Ragwort, Tansy	<i>Senecio jacobaeae</i>	<i>Tyria jacobaeae</i>	Defoliating moth	Widespread	Light	Excellent	Limited
Sage, Mediterranean	<i>Salvia aethiopis</i>	<i>Phrydiuchus tau</i>	Crown/root boring weevil	Widespread	Moderate	Unknown	Yes
Skeletonweed	<i>Chondrilla juncea</i>	<i>Cystiphora schmidtii</i>	Stem/leaf gall midge	Widespread	Moderate	Poor	Yes
Skeletonweed	<i>Chondrilla juncea</i>	<i>Eriophyes chondrillae</i>	Bud gall mite	Widespread	Moderate	Fair	Yes
Skeletonweed	<i>Chondrilla juncea</i>	<i>Puccinia chondrillina</i>	Rust fungus	Widespread	Moderate	Excellent	Yes
Starthistle, Yellow	<i>Centaurea solstitialis</i>	<i>Bangasternus orientalis</i>	Seedhead weevil	Widespread	Light	Poor	Yes
Starthistle, Yellow	<i>Centaurea solstitialis</i>	<i>Chaetorellia australis</i>	Seedhead fly	Limited	Slight	Poor	Yes
Starthistle, Yellow	<i>Centaurea solstitialis</i>	<i>Eustenopus villosus</i>	Seedhead weevil	Widespread	Heavy	Good	Yes
Starthistle, Yellow	<i>Centaurea solstitialis</i>	<i>Larinus curtus</i>	Seedhead weevil	Limited	Light	Unknown	No
Starthistle, Yellow	<i>Centaurea solstitialis</i>	<i>Urophora jaculata</i>	Seedhead gall fly	No establishment			
Starthistle, Yellow	<i>Centaurea solstitialis</i>	<i>Urophora sirunaseva</i>	Seedhead gall fly	Widespread	Moderate	Poor	Yes
Thistle, Senderflower	<i>Carduus tenuiflorus</i>	<i>Rhinocyllus conicus</i>	Seedhead weevil	Widespread	Heavy	Good	Yes
Thistle, Bull	<i>Cirsium vulgare</i>	<i>Urophora stylata</i>	Seedhead gall fly	Initial release	Slight	Unknown	No
Thistle, Canada	<i>Cirsium arvense</i>	<i>Altica carduorum</i>	Leaf feeding beetle	No establishment			
Thistle, Canada	<i>Cirsium arvense</i>	<i>Ceutorhynchus litura</i>	Crown/Root weevil	No establishment			
Thistle, Canada	<i>Cirsium arvense</i>	<i>Urophora cardui</i>	Stem gall fly	Limited	Unknown	Poor	No
Thistle, Italian	<i>Carduus pycnocephalus</i>	<i>Rhinocyllus conicus</i>	Seedhead weevil	Widespread	Heavy	Good	Yes
Thistle, Milk	<i>Silybum marianum</i>	<i>Rhinocyllus conicus</i>	Seedhead weevil	Widespread	Heavy	Poor	Yes
Thistle, Musk	<i>Carduus nutans</i>	<i>Rhinocyllus conicus</i>	Seedhead weevil	Widespread	Heavy	Excellent	Yes
Thistle, Russian	<i>Salsola tragus</i>	<i>Coleophora klimeschiella</i>	Leaf mining moth	Widespread	Heavy	Poor	Yes
Thistle, Russian	<i>Salsola tragus</i>	<i>Coleophora parthenica</i>	Stem boring moth	Widespread	Heavy	Poor	Yes
Waterhyacinth	<i>Eichhornia crassipes</i>	<i>Neochetina bruchi</i>	Crown/Petiole boring weevil	No establishment			
Waterhyacinth	<i>Eichhornia crassipes</i>	<i>Neochetina eichhorniae</i>	Crown/Petiole boring weevil	Limited	Unknown	Poor	Limited
Waterhyacinth	<i>Eichhornia crassipes</i>	<i>Sameodes albiguttalis</i>	Stem boring moth	No establishment			

\*Collection and/or transportation of BC agents may require special permits and procedures. Always contact CDFA before bringing any BC agents in from another state.

# I Control of Weeds in California

biological control agents have been imported into California and released against 22 species of weeds (Table 1). Of the 49 classical bio-control species, 24 are well established in California and available for distribution. However, before one considers use of a particular bioagent one should look at the other columns included in Table 1 which give preliminary information on its potential to control its host. Twelve species have limited distributions either because of the limited distribution of their host plant or because the biological control agent is still expanding its population. It should be noted that five species were recently released and their status is still in the initial release stage. On the other hand, eight species failed to establish and the status of one is unknown. Successful biological control projects in California include: Klamath weed (*Hypericum perforatum*), tansy ragwort (*Senecio jacobaea*), pucturevine (*Tribulus terrestris*), musk thistle (*Carduus nutans*), and to some degree yellow starthistle (*Centaurea solstitialis*).

Also of interest are the 26 insects that have been found on 19 weeds (Table 2) or host plants that were not part of a targeted release. These host associations were in some cases the result of native species attacking weeds closely allied to their native hosts (e.g. *Uresiphita reversalis* on French Broom),

unknown introductions of insects from other parts of the world (e.g. *Aganopterix alstroemeriana* on poison hemlock), accidental introductions (e.g. *Chaetorellia succinea* on yellow starthistle) or natural spread of the biological control agent (*Urophora quadrifasciata*) from releases that occurred in other states (e.g. Washington and Oregon) or countries (Canada). In some cases these new associations resulted in variable degrees of fortuitous biological control in the weeds. New associations are also established when an approved biocontrol agent is intentionally released on weeds closely related to their approved target (e.g. *Bangasternus fausti* on squarrose knapweed). Many of the natural enemies in Table 2 have not been approved as biological control agents and, thus, are not available for redistribution. These species are listed because they are common and appear to provide some impact on their host species.

In order to obtain approval for weed control activities on lands managed by Federal Agencies (e.g. BLM, Forest Service, US F&W), an Environmental Assessment (EA) may be required. EA's often require

information regarding alternatives to chemical control methods, especially biological control methods. Table 1 lists all weeds that have bio-control agents approved for California. If your target weed is not listed in Table 1, then there are no bioagents approved for use in California. If your target weed is listed, all approved bio-control agents are listed. If you are aware of a bio-control agent used on a weed in other states, but is not listed in Table 1, then that bioagent is not approved for use in California and is not available.

Additional new biocontrol agents are being tested for alligatorweed (*Alternanthera philoxeroides*), Cape ivy (*Senecio mikanioides*), Dalmatian toadflax (*Linaria dalmatica*), gorse (*Ulex europaeus*), musk thistle (*Carduus nutans*), Russian knapweed (*Acroptilon repens*), Russian thistle (*Salsola tragus*), Scotch broom (*Cytisus scoparius*), tamarisk (*Tamarix ramosissima*), and yellow starthistle (*Centaurea solstitialis*). Biological control agents are readily available for various weeds while some agents are still undergoing host testing.

For further information contact Baldo Villegas who is with the CDFA Biological Control Program, (916) 262-2051.

## Table 2: Accidental Introductions and Others

Weed	Scientific Name	Bio-Control	BC Agent Role	Distribution	Infestation	Control	Availability*
Broom, French	<i>Genista monspessulana</i>	<i>Aceria genistae</i>	Gall mite	Limited	Unknown	Undetermined	No
Broom, French	<i>Genista monspessulana</i>	<i>Uresiphita reversalis</i>	Defoliating moth	Widespread	Moderate	Undetermined	Yes
Broom, Scotch	<i>Cytisus scoparius</i>	<i>Agonopterix nervosa</i>	Shoot tip moth	Unkown	Unknown	Undetermined	No
Broom, Scotch	<i>Cytisus scoparius</i>	<i>Arytainilla spartiophila</i>	Sap sucking psillid	Widespread	Heavy	Undetermined	Yes
Gorse	<i>Ulex europaeus</i>	<i>Aceria genistae</i>	Gall mite	Limited	Unknown	Undetermined	No
Gorse	<i>Ulex europaeus</i>	<i>Agonopterix nervosa</i>	Shoot tip moth	Unkown	Unknown	Undetermined	No
Halogeton	<i>Halogeton glomeratus</i>	<i>Coleophora klimeschiella</i>	Leaf mining moth	No establishment			
Halogeton	<i>Halogeton glomeratus</i>	<i>Coleophora parthenica</i>	Leaf mining moth	No establishment			
Hemlock, Poison	<i>Conium maculatum</i>	<i>Agonopterix alstroemeriana</i>	Defoliating moth	Widespread	Moderate	Undetermined	Yes
Knapweed, Diffuse	<i>Centaurea diffusa</i>	<i>Puccinia jaceae</i>	Rust fungus	Limited	Slight	Poor	Limited
Knapweed, Squarrose	<i>Centaurea squarrosa</i>	<i>Bangasternus fausti</i>	Seedhead weevil	Initial release	Unknown	Unknown	No
Knapweed, Squarrose	<i>Centaurea squarrosa</i>	<i>Cyphocleonus achates</i>	Root boring weevil	Initial release	Unknown	Unknown	No
Knapweed, Squarrose	<i>Centaurea squarrosa</i>	<i>Larinus minutus</i>	Seedhead weevil	Initial release	Unknown	Unknown	No
Knapweed, Squarrose	<i>Centaurea squarrosa</i>	<i>Urophora affinis</i>	Seedhead gall fly	Limited	Slight	Poor	No
Knapweed, Squarrose	<i>Centaurea squarrosa</i>	<i>Urophora quadrifasciata</i>	Seedhead gall fly	Limited	Light	Poor	Yes
Nutsedge, Purple	<i>Cyperus rotundus</i>	<i>Bactra verutana</i>	Crown boring moth	Widespread	Heavy	Unknown	Limited
Purslane, Common	<i>Portulaca oleracea</i>	<i>Hypurus bertrandiperris</i>	Leaf mining weevil	Widespread	Unknown	Undetermined	Limited
Purslane, Common	<i>Portulaca oleracea</i>	<i>Schizocerella pilicornis</i>	Leaf mining sawfly	Widespread	Heavy	Excellent	Limited
Starthistle, Yellow	<i>Centaurea solstitialis</i>	<i>Chaetorellia succinea</i>	Seedhead fly	Widespread	Moderate	Undetermined	Yes
Thistle, Artichoke	<i>Cynara cardunculus</i>	<i>Terellia fusicornis</i>	Seedhead fly	Limited	Heavy	Undetermined	Limited
Thistle, Bull	<i>Cirsium vulgare</i>	<i>Puccinia sp.</i>	Rust fungus	Widespread	Unknown	Poor	Yes
Thistle, Canada	<i>Cirsium arvense</i>	<i>Rhinocyllus conicus</i>	Seedhead weevil	Limited	Unknown	Poor	Yes
Thistle, Milk	<i>Silybum marianum</i>	<i>Terellia fusicornis</i>	Seedhead fly	Limited	Light	Poor	Limited
Thistle, Plumelless	<i>Carduus acanthoides</i>	<i>Rhinocyllus conicus</i>	Seedhead weevil	Limited	Unknown	Unknown	Yes
Thistle, Scotch	<i>Onopordum acanthium</i>	<i>Rhinocyllus conicus</i>	Seedhead weevil	No establishment			
Thistle, Slenderflower	<i>Carduus tenuiflorus</i>	<i>Puccinia carduorum</i>	Rust fungus	Widespread	Unknown	Poor	Yes
Toadflax, Yellow	<i>Linaria vulgaris</i>	<i>Gymnetron antirrhini</i>	Seed weevil	Limited	Unknown	Undetermined	No
Starthistle, Purple	<i>Centaurea calcitrapa</i>	<i>Terellia viridis</i>	Seedhead fly	Initial release	Unknown	Unknown	No
Starthistle, Purple	<i>Centaurea calcitrapa</i>	<i>Larinus minutus</i>	Seedhead weevil	Initial release	Unknown	Unknown	No
Starthistle, Purple	<i>Centaurea calcitrapa</i>	<i>Urophora affinis</i>	Seedhead gall fly	Initial release	Unknown	Unknown	No
Starthistle, Purple	<i>Centaurea calcitrapa</i>	<i>Urophora quadrifasciata</i>	Seedhead gall fly	Initial release	Unknown	Unknown	No

## **Additional "Back-Door" Ways of Getting Weed Management Monies**

### ***U.S. Environmental Protection Agency (EPA)***

[www.epa.gov/region09/funding](http://www.epa.gov/region09/funding)  
State-Tribal-Local Wetlands Protection Grants 104 (b)(3)

Sustainable Development Challenge Grants (SDCG)

Five-Star Restoration Challenge Grants  
[www.epa.gov/owow/wetlands/restore/5star](http://www.epa.gov/owow/wetlands/restore/5star)

***Department of Defense (DoD)***  
Strategic Environmental Research & Development Program (SERDP):  
Natural Resource Management  
Control of Non-Indigenous Invasive Species (Conservation)  
<http://www.serdp.gov/funding>

### ***The Great Valley Center***

<http://www.greatvalley.org/>  
LEGACI grants (Land use, Environment, Growth, Agriculture, Conservation, & Investment)

***Resource Conservation Districts,***  
partnering with your local RCD

***California Environmental Protection Agency (CalEPA)***  
Department of Pesticide Regulation Pest Management Grants-Demonstration

***U.S. Department of Agriculture (USDA)***  
Biological Control Implementation Grant and cooperative Agreement Program (National Biological Control Institute)

Regional Integrated Pest Management Grants Program-Western Region  
\*Research & Extension staff at Land Grant Universities

Funding *continued from page 9*

multi-partner and multi-agency involvement, and Federal agency benefit (Projects with direct benefits to fish, wildlife, and other biotic resources on public lands or lands that directly affect federal agency lands).

### ***Pulling Together Initiative***

The Pulling Together Initiative (PTI) provides a means for federal agencies to be full partners with state and local agencies, private landowners and other parties interested in developing long-term weed management projects within the scope of an integrated pest management strategy. The goals of PTI are: 1) to prevent, manage, or eradicate invasive and noxious plants through a coordinated program of public/private partnerships and 2) to increase public awareness of the adverse impacts of invasive and noxious plants. The initiative provides support on a competitive basis for the formation of local weed management area (WMA) partnerships. These partnerships will be financed by funds from federal agencies together with matching funds from state, local, and private partners. Additional grant criteria include: statements of support for the long-term establishment of a WMA, a specifically defined WMA, an outline of a long-term management plan, and a project WMA steering Committee.

### ***Native Plant Conservation Initiative***

Native Plant Conservation Initiative (NPCI) provides a framework and strategy for linking resources and expertise in developing a coordinated national approach to the conservation of native plants. NPCI seeks funding for on-the-ground conservation projects that protect, enhance, and/or restore native plant communities on public and private lands. NPCI is a cooperative program created in partnership with NFWF, several federal agencies, and more than 55 non-governmental organizations.

## **"War on Weeds" Mini-Grants**

In 1996 the California Interagency Noxious Weed Coordinating Committee, (CINWCC), comprised of State and Federal agencies throughout California formed an understanding to control noxious weeds in California. An initial focus of this Interagency Group was to develop a noxious weed database. In 1997, the BLM California State Office requested and received extra funds towards this database project. Additional funds were also used as a grant pool to solicit weed project proposals and thus creating a "War on Weeds" mini-grant.

The War on Weeds mini-grant provides funding opportunities on a competitive basis for weed projects within California. A total of \$10,000 has been made available by the BLM for 1999. In order of priority, funding categories are: (1) Cooperative weed projects that involve Federal agencies, State & County agencies, non-profit groups, and private landowners (e.g. Weed Management Areas), (2) Research projects that will develop new technology or approaches useful for on-the-ground projects, and (3) Educational projects that have statewide benefits. Proposals must be submitted or endorsed by one or more agencies of the CINWCC (see page 2 for signatory agencies and representatives) to be considered. In addition, all projects must provide at least a 1:1 funding match.

As emphasized by the overwhelming response to the "War on Weeds" mini-grant, there exists a TREMENDOUS need for more funding specifically allocated towards weed management throughout the state. ❖



## THE FOUNDATION CENTER- *Private Monies*

Private/foundation monies are another potential source of funding, often overlooked simply due to the overwhelming volume of over 40,000 existing foundations/corporate funding opportunities. This daunting volume of potential private monies can easily be narrowed down by tapping into The Foundation Center resources. The Foundation Center, a non-profit, disseminates current information on foundation and corporate giving through their national collections in New York City and Washington, D.C., their field offices (San Francisco included), and their network of cooperating libraries in all 50 states. Through these library collections, grantseekers have free access to Center databases (grant and grantmaker directories) and Guides (e.g. Funding the Environment and Animal Welfare) in book or CD ROM format. Typical foundation entries include purpose and activities statements, fields of donor interest, past projects funded, funding limitations, donor information, and application information. Indexes help grantseekers target potential funders by donor name, subject field, and/or geographic area. In preparation for this article, the knowledgeable Foundation Center Staff, located at the downtown Sacramento Central Public Library, assisted the editorial staff in running subject searches for environment, restoration, and bio-diversity related funding, both specific to California and inclusive of the entire U.S., via the Center's CD Rom Database. The list of foundations in the side bar were some of the foundations targeted as potentially being interested in funding environmentally focused (restoration, bio-diversity included) projects.

**It should be emphasized that each foundation has stated requirements and preferences in terms of specific locations and project/subject areas where funding support is allocated.** Such specifications for the Foundations mentioned in this article can be obtained directly from the Foundation Center locations or will soon be on a CDFA-Integrated Pest Management, California Weed Management Area Web site (construction in progress).

## Additional Comprehensive Resources Valuable in Locating Potential Funding:

**Cost Share and Assistance Programs For Individual California Landowners and Indian Tribes** <http://ceres.ca.gov/foreststeward/funding.html> 1-800-738-TREE *Forest Stewardship Help line*

**Department of Fish and Game (DFG)** <http://www.dfg.ca.gov>  
**Sources of Funds for Stream and Watershed Restoration in California**  
*Compiled by The Habitat Restoration Group* <http://www.habitat-restoration.com/funds.htm>

**California Resource Agency Funding Matrix for Northern California Watershed Activities**  
<http://ceres.ca.gov/watershed/funding>

## *Environmentally Focused Foundations*

### **David and Lucile Packard Foundation**

[www.packfound.org](http://www.packfound.org)

(650) 948-7658 Los Altos, CA

### **Richard and Rhoda Goldman Fund**

[www.goldmanfund.org](http://www.goldmanfund.org)

(415) 788-1090 San Francisco, CA

### **Marin Community Foundation**

[www.marincf.org](http://www.marincf.org)

(415) 461-3333 Larkspur, CA

### **The Pew Charitable Trusts**

[www.pewtrusts.com](http://www.pewtrusts.com)

(215) 575-9050 Philadelphia, PA

### **The San Diego Foundation**

[www.sdfoundation.org](http://www.sdfoundation.org)

(619) 235-2300 San Diego, CA

### **Weeden Foundation**

[www.weedenfdn.org](http://www.weedenfdn.org)

(212) 888-1672 New York, NY

### **The San Francisco Foundation**

[www.sff.org](http://www.sff.org)

(415) 477-2783 San Francisco, CA

### **The Rockefeller Foundation**

[www.rockfound.org](http://www.rockfound.org)

(212) 869-8500 New York, NY

### **Rockefeller Brothers Fund**

[www.rock@rbf.org](http://www.rock@rbf.org)

(212) 812-4200 New York, NY

### **The James Irvine Foundation**

[www.irvine.org](http://www.irvine.org)

(415) 777-2244 San Francisco, CA

### **Evelyn and Walter Haas, Jr. Fund**

[www.omhrc.gov/fund-db/F0022.HTM](http://www.omhrc.gov/fund-db/F0022.HTM)

(415) 398-3744 San Francisco, CA

### **Columbia Foundation**

#### **(Environment Policy Center)**

[www.columbia.org](http://www.columbia.org)

(415) 986-5179 San Francisco, CA

### **Compton Foundation, Inc.**

[www.comptonfdn@igc.org](http://www.comptonfdn@igc.org)

(415) 328-0101 Menlo Park, CA

### **W. Alton Jones Foundation, Inc.**

[www.wajones.org](http://www.wajones.org)

(804) 295-2134 Charlottesville, VA

### **John D. and Cathrine T. MacArthur Foundation**

[www.macfdn.org](http://www.macfdn.org)

(312) 726-8000 Chicago, IL

# Agenda for Upcoming CINWCC Meeting April 20, 1999 1:00 – 4:30 pm Plant Pest Diagnostics Center Sacramento, CDFA

- ✓ General Agency news
- ✓ Ag Commissioners – Weed Free Forage, Nursery Invasives
- ✓ Western Weed Coordinating Committee – Meeting Report
- ✓ Range Management Advisory Committee – Strategic Plan
- ✓ Federal Executive Order
- ✓ California State Assembly Bills
- ✓ Weed Management Areas
- ✓ War on Weeds Mini-Grant
- ✓ Coordinated Yellow Starthistle Mapping in the Western Sierra Watersheds
- ✓ Calfed Non-native Invasives Task Force Update
- ✓ Tamarisk Bio-Control Update

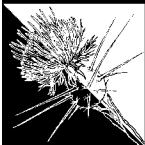
## Upcoming Events:

**April 30, 1999. Deadline to submit Abstracts for CalEPPC Symposium '99 to be held October 15-16, 1999 in Sacramento.** Members, colleagues, and students are strongly encouraged to submit an abstract for a poster or oral presentation. Topics could include, but are not restricted to, aspects of the biology, ecology, impacts, and prevention or management of noxious weeds. Send abstracts by mail to Joe DiTomaso, Weed Science Program, Robbins Hall, University of California, Davis, CA 95616 or through e-mail to [ditomaso@vegmil.ucdavis.edu](mailto:ditomaso@vegmil.ucdavis.edu)

**June 21-25 and June 28-July 2, 1999.** Five day, Northern California Weed Tour led by CDFA State Biologist, Robin Breckenridge. Limited space is available and priority is typically given to agricultural commission staff and county/state personnel. Contact Robin for further information, (916) 654-0768

**Mid-July, 1999.** One day, weed tours in Modoc and Siskiyou Counties led by CDFA State Biologist, Butch Kreps, County Ag Commissioners and Farm Advisors. Exact dates yet to be determined. For further information contact Modoc Ag Commissioners office, (530) 233-6401 or Siskiyou Ag Commissioners office, (530) 841-2540.

**July 15, 1999. 7:30am-4pm.** UC Davis 43<sup>rd</sup> Annual Weed Day. Buehler Alumni Center, UCD campus. An opportunity to learn about current Weed Science research at UC Davis. Day consists of a morning bus tour of field demonstrations and indoor presentations in the afternoon. Buses leave Alumni Center at 8:15am. Pre-registration \$20, walk-in \$25, and students \$7 (lunch is included). Contact Brenda Brinton, (530) 752-0612 or Nancy Muller, (530) 752-7091, [muller@vegmil.ucdavis.edu](mailto:muller@vegmil.ucdavis.edu)



California Interagency  
Noxious Weed Coordinating  
Committee  
*Noxious Times*

1220 N Street, Room A-357  
Sacramento, CA 95814

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